

Climate Change Draft Scoping Plan:

A Framework for Change

June 26, 2008

California Air Resources Board

The Time for Action Is Now

- Climate change is one of the most serious environmental issues facing the world
- Governor and Legislature have set bold goals for California
- Draft Scoping Plan provides a comprehensive recommendation addressing all significant sources of greenhouse gas emissions

Today's Presentation

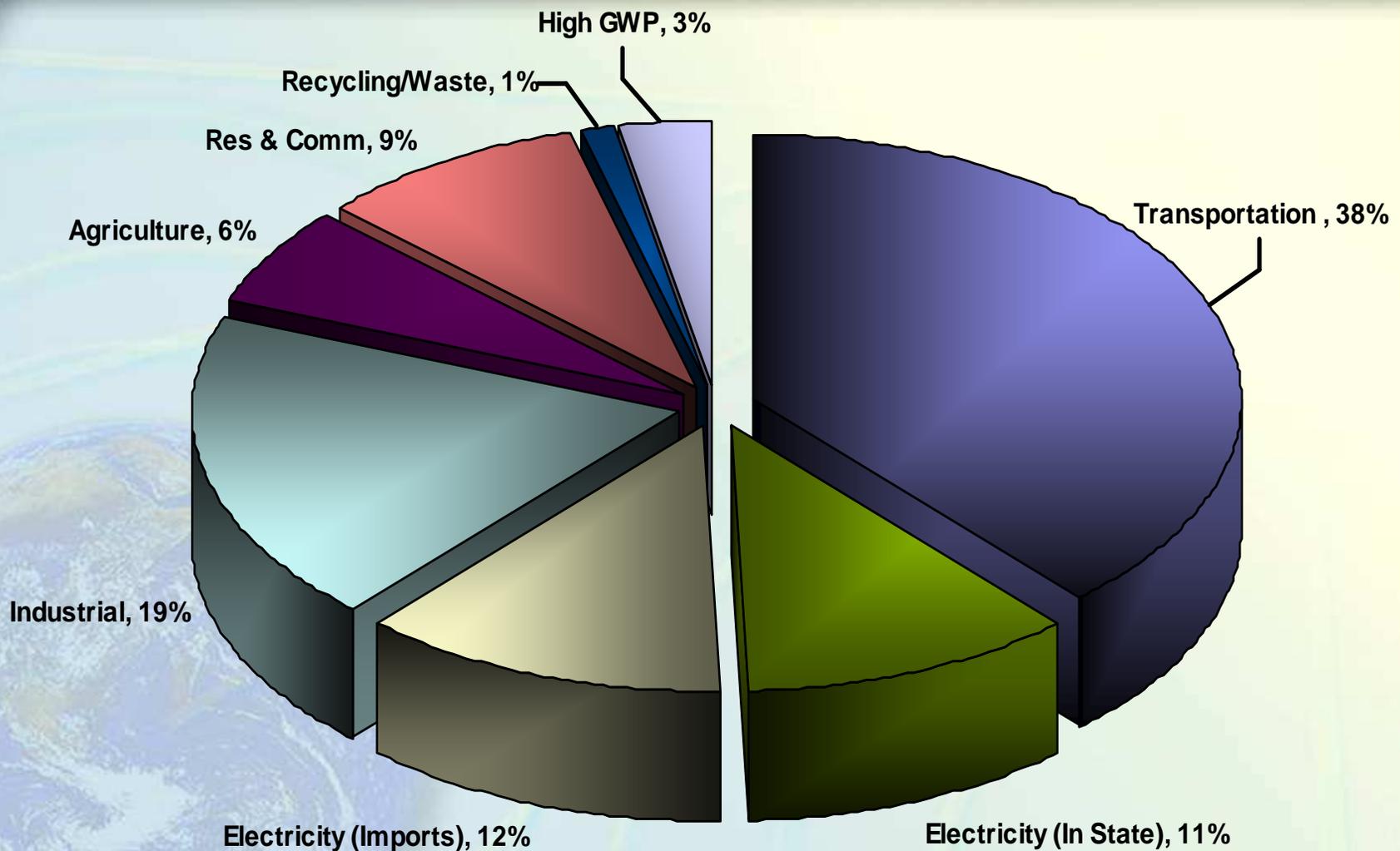
- Draft Scoping Plan Overview
- Preliminary Recommendations
- Additional Measures Under Consideration
- Scoping Plan Evaluations
- A Vision for the Future
- Next Steps

Draft Scoping Plan

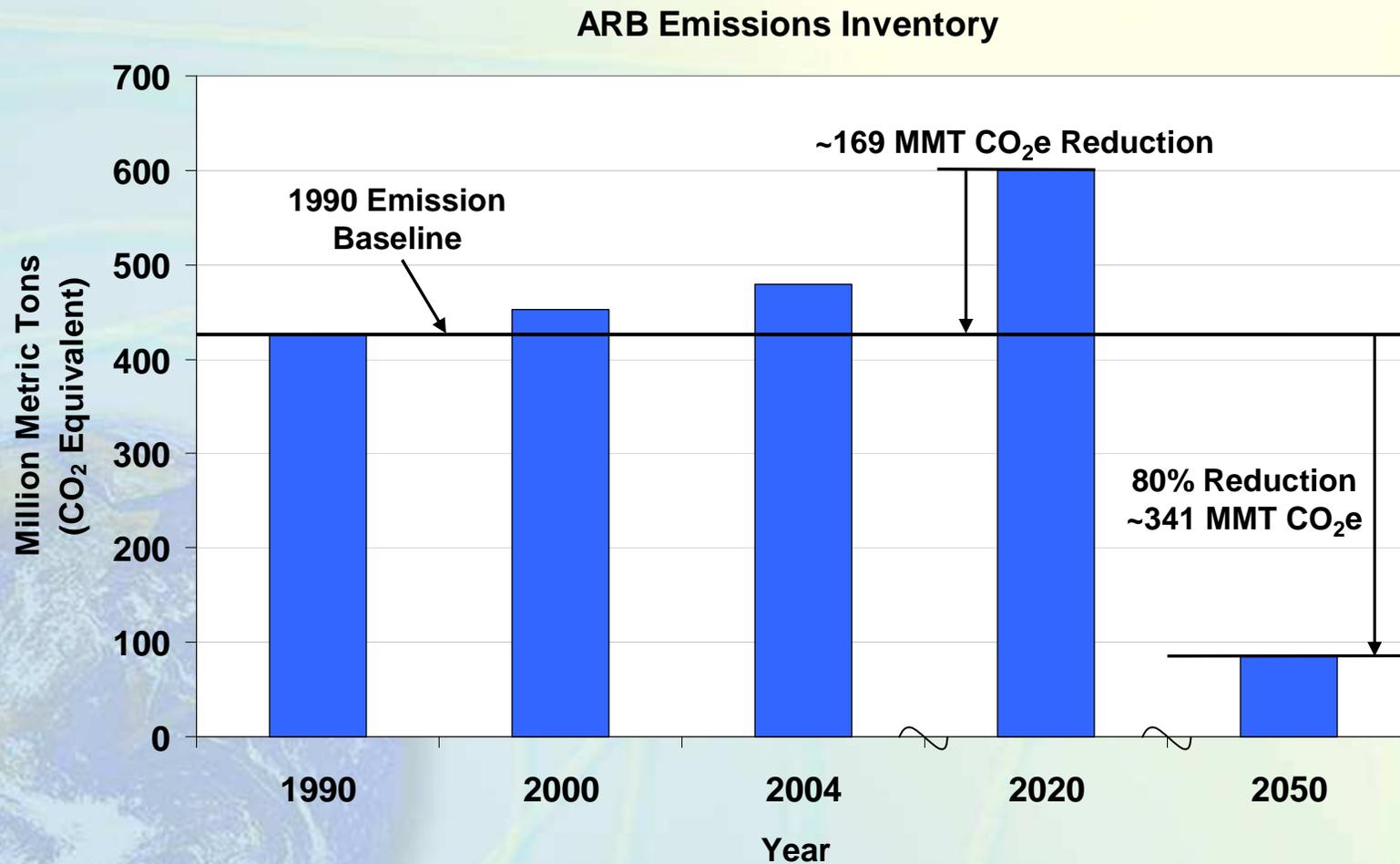
- By 2020, reduce greenhouse gas emissions statewide to 1990 levels
- California's GHG strategies will also:
 - Protect and improve public health
 - Promote the development of clean energy
 - Foster opportunities for economic growth
 - Provide a model for regional, federal, and international programs
 - Put State on a path to 2050 goal

Draft Scoping Plan

2002-2004 GHG Emissions (469 MMTCO₂E)



Magnitude of the Challenge



Draft Scoping Plan Development

- Contributions from Climate Action Team Subgroups
- Input from EJAC, ETAAC, and MAC
- Formal workshops & stakeholder work group meetings
- Public solicitation
- Extensive outreach at meetings, conferences and other events

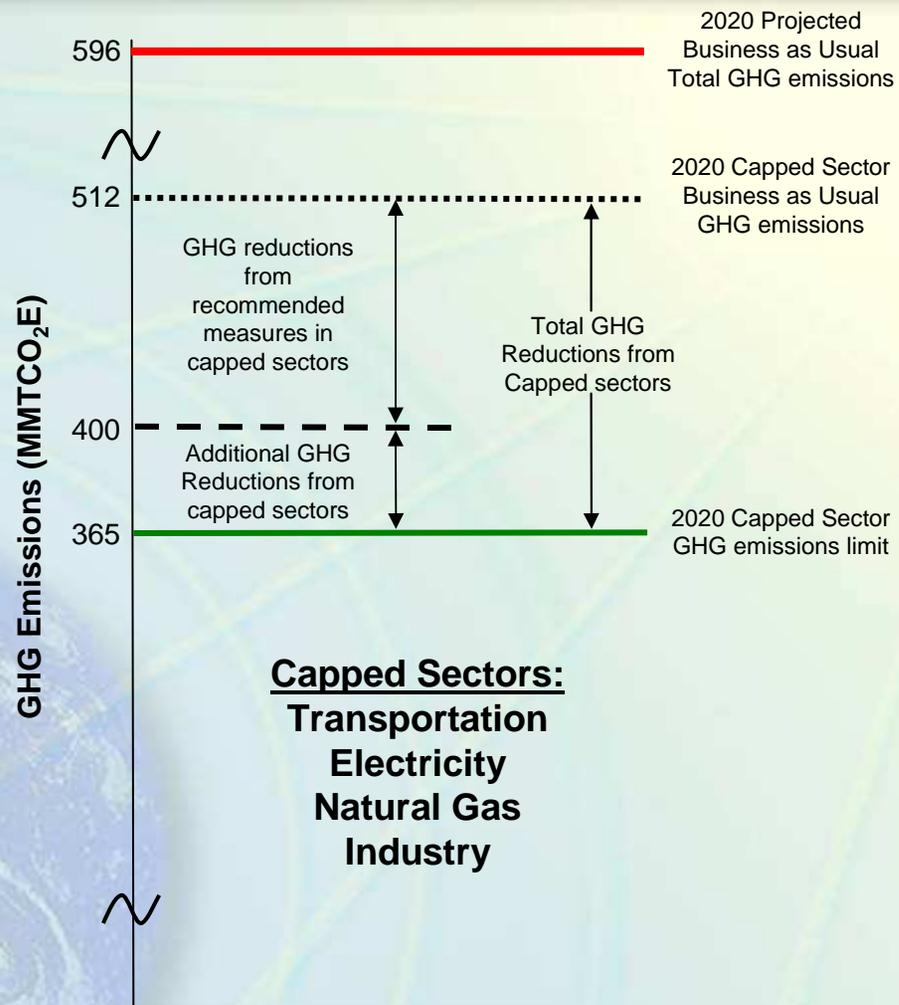
- Document released today is a draft
- Soliciting stakeholder comments to help shape Proposed Scoping Plan
- Request comments by August 1, 2008

Preliminary Recommendation

- Mix of strategies that combine market mechanisms, regulations, voluntary measures, and fees
- Key elements:
 - Energy efficiency programs
 - Renewables Portfolio Standard
 - California cap and trade program linked to WCI
 - Existing laws and policies
 - Targeted fees to fund implementation

Preliminary Recommendation

Structure of the Draft Plan



Preliminary Recommendation

Recommended Measures

Table 2: Recommended Greenhouse Gas Reduction Measures

Recommended Reduction Strategies	Sector	2020 Reductions (MMTCO ₂ E)
The Role of State Government	Various	1-2 ¹⁷
California Cap-and-Trade Program Linked to WCI: Emissions cap of 365 MMTCO ₂ E covering electricity, transportation, residential/commercial and industrial sources by 2020. Shaded reductions contribute to achieving the cap.		
California Light-Duty Vehicle GHG Standards	Transportation	31.7
Energy Efficiency	Electricity & Commercial and Residential	26.4
Renewables Portfolio Standard (33% by 2020)	Electricity	21.2
Low Carbon Fuel Standard	Transportation	16.5
High Global Warming Potential Gas Measures	High GWP	16.2
Sustainable Forests	Forests	5
Water Sector Measures	Water	4.8 ¹⁸
Vehicle Efficiency Measures	Transportation	4.8
Goods Movement	Transportation	3.7
Heavy/Medium Duty Vehicles	Transportation	2.5
Million Solar Roofs (Existing Program Target)	Electricity	2.1
Local Government Actions and Regional GHG Targets	Land Use and Local Government	2
High Speed Rail	Transportation	1
Landfill Methane Control	Recycling & Waste	1
Methane Capture at Large Dairies	Agriculture	1 ¹⁹
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	Industrial	TBD
Additional Emissions Reduction from Capped Sectors		35.2
	Total Reductions	169

State Government

- State must set an example
- Reduce “carbon footprint” by 30% from expected 2020 levels
 - State Green Buildings Initiative
 - State motor vehicle fleet clean up
 - Procurement practices
 - Commute alternatives for State employees
- Evaluate “carbon shadow”
 - Climate change impact of government policies and decisions

Preliminary Recommendation

California Cap and Trade Linked to Regional Market

- California cap and trade program that links with other WCI Partner programs to create a regional market system
- Ensure California's program meets all applicable AB 32 requirements
- Capped sectors:
 - Electricity
 - Industrial sources
 - Transportation fuels (by 2020)
 - Commercial and residential NG (by 2020)

Preliminary Recommendation

California Cap and Trade Linked to Regional Market

- Enforceable cap over GHG emissions from sources beginning in 2012
- Cap declines over time to meet 2020 targets; can be adjusted for 2050 target
- State distributes “allowances” equal to total emissions in the cap
- Limited use of offsets
- Strong enforcement and monitoring
- Must include safeguards for regional and local co-pollutants

Transportation

Cars, Trucks, Goods Movement and Fuel

- Light-duty vehicle greenhouse gas reductions (Pavley I and Pavley II)
- Low carbon fuel standard
- Efficiency measures for cars
- Aerodynamic design improvements for trucks
- Hybridization for urban and short-haul trucks
- Improved efficiency for heavy duty trucks
- Implement adopted goods movement strategies and improve efficiency
- High speed rail

- Increase utility-based energy efficiency programs
- More stringent building and appliance standards
- Million Solar Roofs Program
- Residential solar water heaters
- Encourage combined heat & power
- Achieve 33 percent RPS for all utilities

Preliminary Recommendation

Local Government Actions and Regional GHG Targets

- Develop regional targets in collaborative process
 - Comprehensive process
 - Consider other policy goals
 - Incorporate performance indicators
 - Provide State resources
- Encourage local climate action plans and local targets

Industrial Sources

- Require efficiency and co-benefit audit of largest industrial sources
 - Evaluate potential to reduce GHG, criteria pollutants, and air toxics
- Audit results used to identify cost-effective GHG reductions that also reduce criteria or toxic pollutants
 - Co-benefits to nearby residents

Preliminary Recommendation

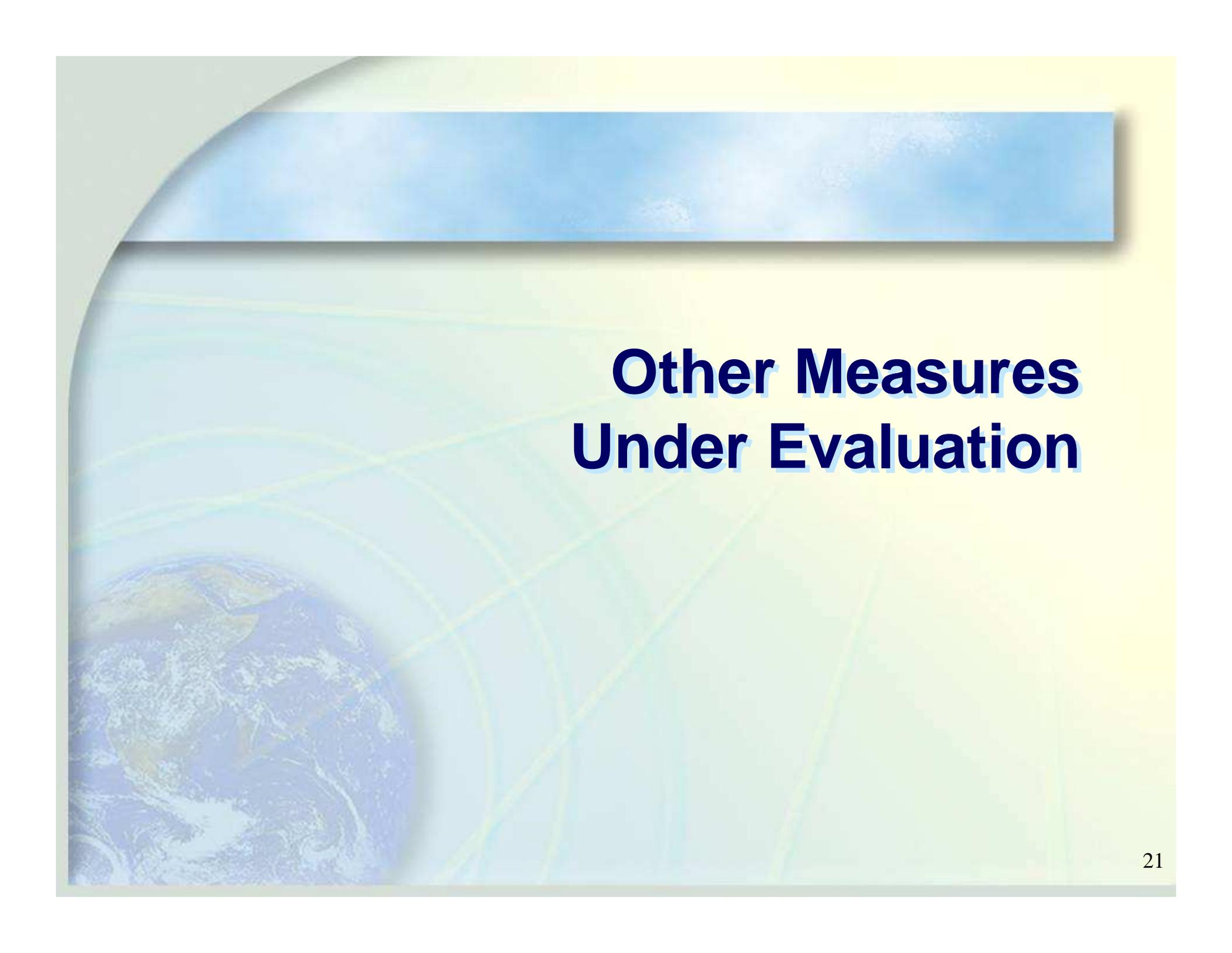
Measures from Uncapped Sectors

High GWP Gases

- Used in refrigerators, air conditioners, fire suppression and insulating foam
 - More potent greenhouse gases
- Possible approaches:
 - Fees to discourage leakage or disposal
 - Standards to prevent leakage
 - Recovery and proper destruction of high GWP “banks”

Measures From Uncapped Sectors

- **Recycling and Waste**
 - Reduce landfill methane; increased diversion, recycling and composting
- **Forests**
 - Preserve forest sequestration
- **Water**
 - Continue efficiency programs
- **Agriculture**
 - Encourage investment in digesters; evaluate mandatory program in 2013

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Other Measures Under Evaluation

Sector-Based Measures

- **Transportation**
 - Market-based strategies
- **Electricity/Energy**
 - More aggressive efficiency programs
 - Reduce coal-fired electricity
- **Industry**
 - Refineries
 - Cement
 - Glass manufacture
 - Boilers and stationary engines

Offsets

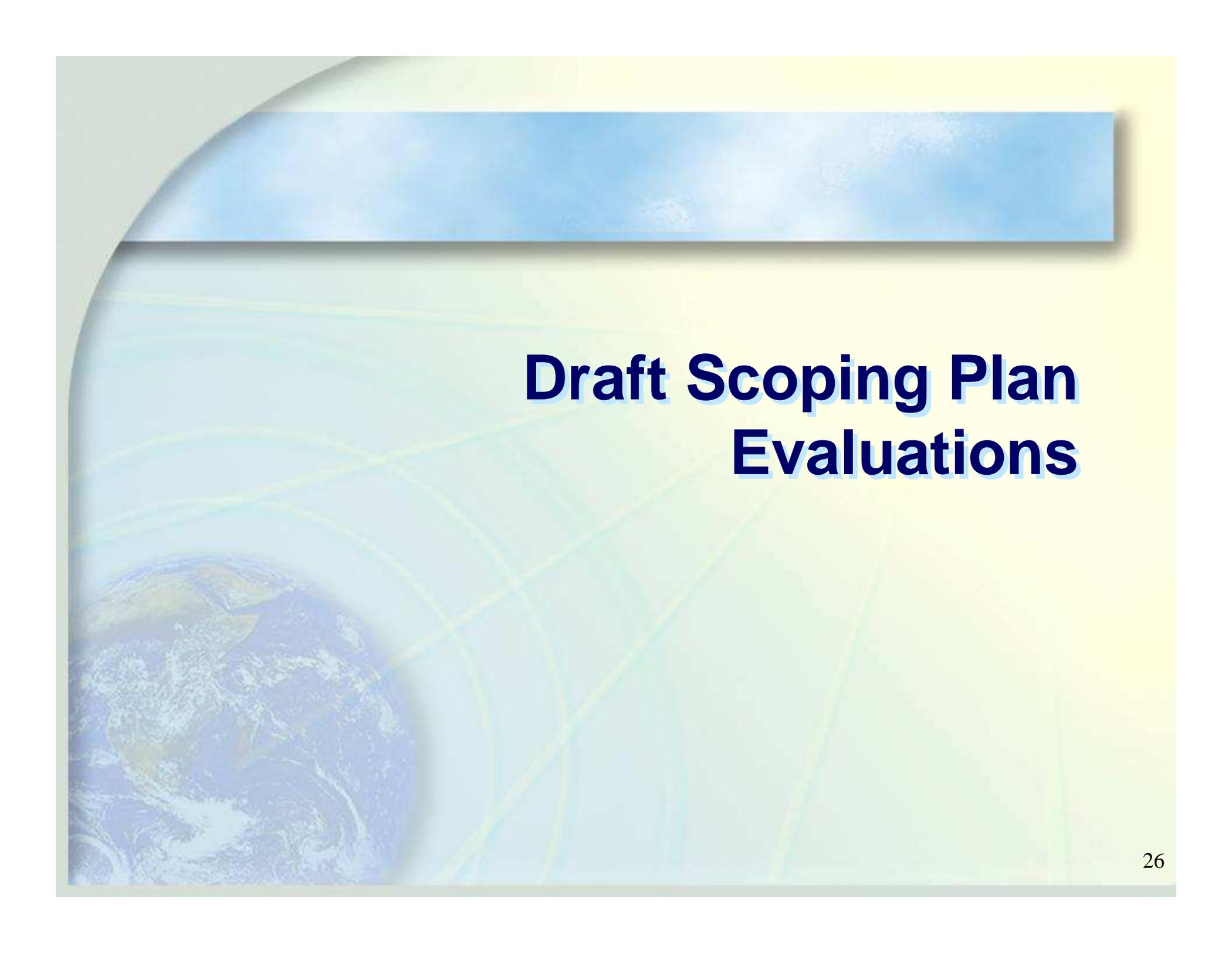
- Surplus reductions from unregulated or uncapped sources
- Rigorous criteria necessary to maintain environmental integrity
- Voluntary offsets
 - Growing market for offsetting emissions
- Compliance offsets
 - Could be used in cap and trade, regulatory measures or carbon fee approach
- ARB must adopt methodologies and enforcement regulation for use in AB 32

Carbon Fee

- Use carbon pricing to achieve reductions
 - Applied to CO₂ equivalent emissions upstream
- Price would be determined through economic models
- Provides less certainty of meeting 2020 goal

Potential Use of Revenues

- **California Carbon Trust**
 - Use of revenues for the public good
- **Other potential uses:**
 - Support AB 32 reduction goal
 - Achieve environmental co-benefits
 - Local government incentives & consumer rebates
 - Climate change adaptation
 - Community benefits
 - Consumer rebates
 - RD&D funding
 - Worker transition assistance

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Draft Scoping Plan Evaluations

Potential Economic Impacts

Preliminary Evaluation

- Overall savings of Draft Scoping Plan expected to outweigh costs
 - Many measures increase energy efficiency
- Efficiency measures likely to mitigate moderate increases in energy prices
 - Pavley regulation saves car buyer \$30/month
- Additional analyses in progress

Public Health Benefits

Preliminary Estimates for 2020

Health Endpoint	Estimated Benefit*
Avoided premature deaths	340
Avoided hospitalizations due to respiratory causes	71
Avoided hospitalizations due to cardiovascular causes	130
Avoided asthma-related & other lower respiratory symptoms	9,400
Avoided acute bronchitis	780
Avoided work loss days	57,000
Avoided minor restricted activity days	330,000
Total Economic valuation: \$1.5 billion to \$2.4 billion	

***Based on preliminary estimates of reduced fuel use from measures**

Green Technology

- Position California as a leader in the emerging clean tech global marketplace
- State has long history of successful innovation that has been key economic driver
- California green technology businesses grew by over 80% between 1990 & 2006
- Over \$1 billion in cleantech venture capital investment in California in 2006

Efforts Still Underway

- Economic modeling
- Small business impacts
- Environmental analysis
- Localized impact analysis
- Public health evaluation
- Societal impacts

**Evaluation Supplement and Workshop
in Summer 2008**

Moving Toward 2050

A Clean Energy Future

- **Governor's Executive Order (ES-03-05)**
 - 80% reduction of GHG by 2050
- **Scoping Plan beyond 2020:**
 - Clean and secure energy sources
 - Sustainable, safe, and clean communities

Coordination with Other Efforts

- WCI can result in lower cost reductions
 - California high standards can influence other sources and states in the region
- California and regional leadership can pave the way nationally
 - Need to preserve states as laboratories of innovation
- International participation is crucial for global success
 - International Carbon Action Partnership

Draft Scoping Plan: Next Steps

- Summer:
 - Workshops and community meetings
 - Supplemental evaluation
 - Begin development of fee regulation to support AB 32 implementation
- October:
 - Proposed Scoping Plan release with 45-day environmental review
- November:
 - Board consideration of the Proposed Scoping Plan

Scoping Plan Implementation

- Two years to adopt AB 32 measures
 - Regulatory development will follow normal public process
 - Extensive stakeholder outreach and involvement
- Implementation and enforcement critical
- ARB must monitor implementation
- Required to re-visit Scoping Plan in 5 years

A Shared Challenge

- Californians responding to challenge of reducing greenhouse gases
- AB 32 implementation will depend on government, business, and individuals working together
- We must spark the imagination of the next generation to make California a cleaner and healthier place to live